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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/224,401 12/31/98 HOSUR

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EXAMINER

NGUYEN, H

ART UNIT

PAPER NUMBER

2662

DATE MAILED:

10/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/224,401

Applicant(s)

Hosur et al.

Examiner

Hanh Nguyen

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-45 is/are pending in the application

4a) Of the above, claim(s) _____ is/are withdrawn from consideration

5) ☒ Claim(s) 29-45 is/are allowed.

6) ☒ Claim(s) 1-28 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirements

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

20) ☐ Other: _____

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DETAILED ACTION

Response to Arguments

1. In view of the Appeal Brief filed on 7/30/01, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (a) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (b) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1- 8 and 10-28 are rejected under 35 USC 103(a) as being unpatentable over **Gilhousen et al.** (US Pat. No. 5,056,109) in view of **Kiyanagi et al.** (US Pat. No. 6,029,056).

- Regarding claims 1, 2, 12, 17-19 and 22, **Gilhousen et al.** discloses, in Fig.3, a power control system using CDMA method represented by a base station receiver. A power measurement 60 receives a multiple of mobile unit transmitted signals via an antenna 52, analog receiver 54, and digital data receiver 56 (a measurement circuit receives signals). See col.12, lines 35-60 & Abstract. Fig.6 illustrates a detail power control system of Fig.3 in which a comparator 120 receives a desired power level set by a control processor 78 along with the output signal outputted from the power average circuit 118 (a control circuit receives the output signal and a reference signal). See col.16, lines 27-30. The comparator 120 compares the two signals and provides an output signal indicative of the deviation of the average power level from the desired power level (the control circuit is arranged to produce a control signal in response to a comparison of the output signal and the reference signal). See col.16, lines 30-35. **Gilhousen et al.** does not disclose the first input signal and the second input signal are transmitted from different antennas; and the measurement circuit outputs a signal that corresponds to the two input signals. **Kiyanagi et al.** discloses, in Fig.1, a space diversity receiver that receives input signals S1, S2 from a first and a second antennas (the first input signal and the second input signal transmitted from different antennas respectively). The signals S1 and S2 are combined by combiner 23 to produce an output signal S3 (the measurement circuit outputs a signal that corresponds to the two input signals). See col.5, line 65 to col.6, line 10. Therefore, it would have

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been obvious to use the combiner 23 of **Kiyanagi et al.** in the power control system of **Gilhausen et al.** in order to receive input signals from different antennas and output a corresponding output signal.

- Regarding claim 25, **Gilhausen et al.** discloses, in Fig.6, that after the comparator 120 compares the two input signals and provides an output signal indicative of the deviation of the average power level from the desired power level, the output signal is provided to power up/down command generator 122 which generates either a power-up or power-down command to cell-site transmit modulator (receiving at least a control signal transmitted from an external source) for transmission and control of transmitter power of mobile unit N (producing and transmit a transmit power level of each antenna in response to the control signal). See col.16, lines 30-40.

- Regarding claims 13, 15 and 16, the limitations of these claims have been addressed in claim 1.

- Regarding claims 3, 14 and 20, **Gilhausen et al.** discloses, in Fig.3, that digital data receiver 56 receives the wideband spread spectrum signals for correlating and despreading the mobile unit (first and second input signals is a wideband CDMA). See col.12, lines 50-55.

- Regarding claim 4, the limitation of this claim has been addressed in claim 1.

- Regarding claim 5, the limitation of this claim has been addressed in claim 1.

- Regarding claim 6, the limitation of this claim has been addressed in claim 25.

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- Regarding claims 7 and 21, the limitations of these claims have been substantially addressed in claim 1. In addition, **Gilhousen et al.** discloses, in Fig.3, a comparison process between a received power measurement and a preset power level as a proof to show that each of the transmitted input signal has a predetermined value. In particular, when the received power measurement is greater than the preset level, the adjustment command is generated such that the mobile unit transmitter power is reduced. When the received power measurement is less than the preset level, the power adjustment command data bits are generated to indicate that an increase in mobile unit transmitter power is necessary (each of the first and second predetermined signal has a predetermined values). See col.13, lines 1-10.

- Regarding claim 8, the limitation of this claim has been addressed in claims 1 and 7.

- Regarding claim 10, **Gilhousen et al.** discloses that the mobile unit transmitted signal experiences Ray-Leigh fading before arriving at the cell-site receiver. Corrections are made at the mobile unit to correct for Ray-Leigh fading in the cell-site transmitted signal (first and second signals are Rayleigh fading parameter estimate). See col.12, lines 1-15.

- Regarding claim 11, **Gilhousen et al.** does not disclose the total path diversity of the first and the second input signals is at least twice a number of transmitting antennas. **Sousa et al.** disclose that the transmission bit rate can be increased with no loss in performance and without using more bandwidth by transmitting two carriers that are in phase-quarature from each antenna. This ensures the $2L$ signals (where L is the number of antennas as discussed in claim 1) do not interfere with one another and the bandwidth efficiency is twice as high (the total path diversity

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of the first and the second input signals is at least twice a number of transmitting antennas). See col.7, lines 15-27. Therefore, it would have been obvious to one having ordinary skill in the art to combine the fading resistance transmission as disclosed by **Sousa et al.** with the power control system using CDMA method as disclosed by **Gilhousen et al.** to arrive at the claimed invention in order to resist fading and increase the bandwidth efficiency.

- Regarding claim 23, the limitations of this claim have been addressed in claims 1 and 21.

- Regarding claim 24, the limitation of this claim have been addressed in claim 8.

- Regarding claim 26, the limitation of this claim has been addressed in claim 19.

- Regarding claim 27, **Gilhousen et al.** discloses, in Fig.6, if the received power at the cell-site is higher than that desired of mobile unit N, then a power-down command is generated and transmitted to mobile unit N. If the received power at the cell-site is too low, then a power-up command is generated and transmitted. The power adjustment command feedback compensates for changes in the inbound channels that are independent of the outbound channels. Thus, the power adjustment command feedback is used to compensate for adjustments in mobile unit transmitter power based on the inbound channel path losses (the respective transmit power level has a same transmit power adjustment for antenna in response to one transmit power control signal). See col.16, lines 41-64.

- Regarding claim 28, the limitation of this claim has been addressed in claim 1.

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Claim 9 is rejected under 35 USC 103(a) as being unpatentable over **Gilhousen et al.** (US Pat. No. 5,056,109).

- Regarding claim 9, **Gilhousen et al.** does not disclose the measurement circuit, the control circuit and the estimate circuit are formed on a single integrated chip. However, it is well known in the art to design the measurement circuit, the controller circuit and the estimate circuit on a single integrate chip as described on CDMA-95 standards. Therefore, it would have been obvious to one having ordinary skill in the art to build these circuits on the chip and use the modified chip in **Gilhousen et al.** 's power control system to arrive at the claimed invention.

Allowable Subject Matter

Claims 29-45 are allowed because the prior art does not disclose the step of producing an overlay of diversity pattern with symbol pattern.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hwang (US Pat. No. 6,115,591) discloses Space Diversity Receiver for Use in Radio Transmission System and Method Thereof.

Hakkinen (US Pat. No. 5,839,056) discloses Method and Apparatus for Controlling Transmission Power of a Radio Transmitter.

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Sawahashi et al. (US Pat. No. 6,069,912) discloses Diversity Receiver and its Control method.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Nguyen whose telephone number is (703) 306-5445. The examiner can normally be reached on Monday-Friday from 8:00AM to 5:00 PM.

If attempts to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached on (703) 305-4744. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700.

5. **Any response to this action should be mailed to :**

Commissioner of Patents and Trademarks

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or faxed to : (703) 872-9314

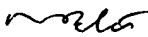
For informal or draft communications, please label "PROPOSED" or "DRAFT"

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Dr.

Arlington VA, Sixth floor (Receptionist)

October 4, 2001


Hanh Nguyen


F. M. [unclear]
[unclear]